

A NEW PROCELSTERNA FROM THE LEEWARD ISLANDS,  
HAWAIIAN GROUP.

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During the past spring the U. S. Fish Commission steamer *Albatross*, while engaged in deep-sea dredging in Hawaiian waters, made a trip to Laysan Island, and on the return voyage stopped at Necker Island (latitude  $23^{\circ} 35' 24''$  N.; longitude  $164^{\circ} 41'$  W.). Here the naturalists of the Expedition were landed. Almost at once we noticed a little gray tern about the rocks, and promptly secured specimens. The same species had previously been seen at sea near the French Frigate Shoals, to the westward. The tern proved to be a new species of the genus *Procelsterna* Lafresnaye,<sup>a</sup> and is here described.

I wish to record my best thanks to Mr. Witmer Stone, of Philadelphia, Pennsylvania, for kindly comparing the type with that of *Anous cinereus* Gould (= *Procelsterna cinerea*) and for giving me measurements, and notes on the literature appertaining to *P. cerulea* (Bennett) and *P. cinerea* (Gould). I am also indebted to Mr. Robert Ridgway, of the U. S. National Museum, for the loan of a specimen of *P. cerulea* and one of *P. cinerea*, which have been of the greatest value; to Mr. J. O. Snyder, who shared the discovery with the writer; and not least to Dr. Charles H. Gilbert, chief of the expedition, who encouraged in every possible way the ornithological side of our work.

PROCELSTERNA SAXATILIS, new species.

NECKER ISLAND TERN.

*Specific characters.*—Nearest *Procelsterna cinerea* (Gould) but more bluish in color, with darker upper parts, darker breast, sides, flanks, and lower tail coverts, and with pearly gray under wing coverts (instead of white of *cinerea*), shorter and slenderer bill, and shorter wings.

*Type.*—Adult male, No. 188651, U.S.N.M.; Necker Island (longitude  $164^{\circ} 41'$  W.; latitude  $23^{\circ} 35' 24''$  N.), Hawaiian group, May 31, 1902; collected by Walter K. Fisher; orig. no. 143.

<sup>a</sup> Maj. de Zool., (2), Ois., pl. XXIX, cum descript. (1842). Type *Sterna cerulea* Bennett.

*Geographic distribution.*—Necker Island, French Frigate Shoals, and Bird Island, of the Leeward Islands, Hawaiian group.

*Description of type.*—Male adult. Bill black. Pileum and fore part of cervix, lores, chin, and throat clear light gray (about No. 8 or 9 of Ridgway's nomenclature), shading to darker (between French gray and cinereous) on nape, cheeks, and sides of neck, and passing into a trifle lighter gray (No. 7) on sides, hind part of jugulum, breast, flanks, and lower tail coverts. Fore part of jugulum and central portion of abdomen pure white, blending into surrounding gray of sides and breast. The breast is almost as pale centrally as the pileum, but becomes gradually darker on sides, shoulders, sides of neck, and malar region inclosing the conspicuously lighter throat and white jugular patch. An orbital ring is black in the anterior two-thirds of upper, in whole of forward, and first third of lower portion, and pure white for the remainder. The black and white are conspicuous, being from 1 to 2 millimeters wide. A small white area occurs just above black portion of orbital ring on "eyebrows." The gray of the nape and hind neck and shoulders shades gradually into a darker and less bluish gray over the mantle (about gray No. 6, or slightly darker), which darkens into a decidedly ashy gray (between slate gray and mouse gray) on wing coverts. Secondaries conspicuously edged with white. The feathers of the mantle are vermiculated with almost obsolete bars of lighter gray (present also in *cinerea* and *cerulea*), which show plainly in favorable lights. Primaries dark slate color, an indistinct light-gray wedge on the inner web of the first three primaries (reaching to within 25 mm. of tip on first), less conspicuous on fourth, and represented on remainder by an indistinct lighter edging. Shafts of primaries very dark sepia. Under wing coverts pearl gray, whitish at bend of wing. Rump, upper tail coverts, and rectrices like mantle. Inner web of each rectrix edged with pale gray distally, becoming almost white proximally (less extended than in *cinerea*). Legs in life dull sepia black, paler toward and on tibiae and toes, webs creamy flesh color, rather lifeless, with an indefinite edging of sepia next to toes. Iris deep sepia, pupil black.

Measurements of type in millimeters: Length in flesh, 285; wing, 186; tail, 113; culmen, 26; depth of bill at nostril (post. end), 5.5; bill from nostril, 17.5; tarsus, 25; middle toe, 32.

*Adult female.*—Cotype, No. 188652, U.S.N.M. In color like the male, but a trifle smaller. (For size see table of measurements.)

*Immature.*—(Female) cotype, No. 188653, U.S.N.M. Upper parts as a whole darker than adult; the pileum of dark feathers edged with gray, giving a mottled appearance; mantle darker and more ashy than adult, lacking faint bars except on longest tertials. Inner tertials and upper tail coverts edged with light gray. Lower parts, as a whole, lighter than adult, being white except an illy defined band across

breast and on throat, which parts are grayish. Sides of head and neck darker than adult. Black portion of orbital ring much wider and more conspicuous than white. White area over orbital ring as in adult. Malar stripe white. Measurements in millimeters: Wing, 157; tail, 80; culmen, 17; tarsus, 23.

*Nestling*.—Recently hatched (male) cotype, No. 188654, U.S.N.M. Completely covered with soft down. Pure white below. Crown white, sides and back of neck very pale buffy. Ends of wings white; inner portion of alar, and the humeral and spinal tracts brownish gray (down white at tips and brownish gray below). Feet greenish gray, bill black.

*Egg*.—Bluntly ovate and broadly elliptical ovate (two specimens). Ground color dull creamy white; in one specimen not thickly marked with roundish rod-shaped, Y-shaped, U-shaped and irregular small spots of clay. Color, light sepia, and wood brown, shell marks showing various shades of bluish gray. In this specimen the spots are rather evenly distributed over the whole egg. The other specimen has more numerous smaller and more regular spots about the size of dust shot, which are scattered over the whole egg, but are thicker at the blunt end. The gray spots are larger and more numerous than the brown ones. The two specimens measure 36.5 by 26 and 39 by 27 millimeters.

In some respects the present form is intermediate between *Procelsterna cerulea* (Bennett) and *P. cinerea* (Gould). This is true of the size, in a general way, and also of the color of the under parts. The under parts of *cerulea* are fully as dark as the back, which (in an old skin collected by T. R. Peale, Dog Island, Low Archipelago) is more ashy than that of *saxatilis*. *Procelsterna saxatilis* shows its closer relationship with *cinerea* in the light lower parts and light gray wedges on the four outer primaries. As mentioned above, however, it is smaller than *cinerea*, with conspicuously shorter wing, and shorter and slenderer bill. The under wing-coverts are pearl gray instead of white, and the breast, sides, and lower tail-coverts are decidedly gray, whereas in *cinerea* the lower parts are almost white and entirely so on the belly and lower tail-coverts. The general tone of the plumage of *cinerea* is ashy, but in *saxatilis* it is bluish.

We first saw this handsome tern off the French Frigate Shoals, between Necker and Laysan. Here it undoubtedly nests on a precipitous rock, which rises 125 feet above the sea. It was at this locality that Henry Palmer, Rothschild's collector, mentioned seeing a little gray tern,<sup>a</sup> which he was unable to secure. He probably meant the present species.

We found *Procelsterna saxatilis* very soon after we landed on

<sup>a</sup>Avifauna of Laysan, etc. By Walter Rothschild (Henry Palmer's Diary, Pt. 1, pp. IX and XII).

Necker, May 31. Necker is a dark, forbidding, rather precipitous rock of volcanic origin, attaining a height of 300 feet. It is about seven-tenths of a mile long and is shaped like a rude fishhook, the "shaft" extending nearly east and west, the "barb" being a rugged peninsula extending toward the northeast and inclosing a rocky and turbulent cove. The island is entirely composed of lava, mostly of a sooty gray or black, with streaks of dull dark red through it. The sides of the rock, though steep, are intricately terraced, especially on the northeast point, where there are a series of shelves and all sorts of knobs and crannies, making the island ideally fitted for the occupation of birds.

The Necker Island tern was found to be fairly common on Necker, but not so abundant as *Sterna fuliginosa* or *Gygis alba kittlitzi*. We first noted them perched on the rocks near what was probably their nesting site, and recognized them as the curious little terns we had seen off the French Frigate Shoals. A single egg is laid in a shallow recess of the rock, but no nest is made; a few sticks and stray feathers only are sometimes gathered. The eggs were not common. The terns usually perch on the rocks somewhere near the "nest," and it was difficult to find a bird on the egg. In fact only one was actually flushed off the egg, and that by Mr. J. O. Snyder, on the north side of the island. This made the identification of the few eggs we had collected certain. Incubation was so far advanced that we could save only two specimens.

At Bird Island this tern is abundant. We were not able to land on the rock, but saw many of the graceful birds from the deck of the U. S. Fish Commission steamer *Albatross* as they flew back and forth. The stomachs of those collected at Necker contained small silvery fishes.

Its near relative *Procelsterna cinerea* is distributed over "Australian and New Zealand seas, Lord Howe, Norfolk, and neighboring islands, and Kermadec Group; also the islet of San Ambrosio, which is nearest to the coast of Chile, but lies outside the cold Antarctic current,"<sup>a</sup> and Eua, Friendly Islands.<sup>b</sup> *Procelsterna cerulea* is distributed over "Central Polynesia: Paumotu or Low Archipelago, the Marquesas, the Society to the Ellice Islands, the Phoenix group, and the Fannings (Christmas Island), and a little north of the equator."<sup>c</sup> It is of interest, therefore, to note that *Procelsterna saxatilis* is separated from its nearest relative by many thousand miles of ocean, and that a quite different species, *cerulea*, ranges in between.

The statement that some of the characters of *saxatilis* are "intermediate" does not in any way indicate that this species is a connecting link. The form is quite separate from the two other species, and fortunately can not justify the introduction of trinomials into the genus *Procelsterna*.

<sup>a</sup>Saunders, Cat. Birds Brit. Mus., XXV. p. 135. <sup>b</sup>Idem., p. 136. <sup>c</sup>Idem., p. 134.

A table of measurements of 7 adult *Procelsterna saxatilis* is here given, and for comparison measurements of 3 adult *P. cinerea*, including the type, and of the same number of *P. cerulea*.

Table of measurements.

## PROCELSTERNA SAXATILIS.

Number.	Sex.	Wing.	Tail.	Culmen.	Bill from nostril.	Depth of bill at nostril.	Tarsus.	Middle toe, with claw.	Locality.
U. S. Nat. Mus. Coll. type 188651.	Male.	186	113	26	17.5	5.5	25	32	Necker Island.
Original No. 148	Male.	186	109	25.2	17	5.5	25	32	Do.
Original No. 144	Male.	185	112	26	17	5.5	25	Bent.	Do.
Original No. 147	Male.	186	115	26.5	17	5. +	25	32	Do.
Original No. 146	Male.	183	109	25	16	5.5	25	32	Do.
Original No. 145	Male.	185	112	25	16.5	5.5	25	32	Do.
U. S. Nat. Mus. Coll. co-type 188652.	Female.	180	110	25. -	16. +	5	24. +	31	Do.

## PROCELSTERNA CINEREA.

Phil. Acad. Sci. Coll. type 5032.	.....	211	.....	28	.....	.....	.....	.....	East coast Australia.
Phil. Acad. Sci. Coll. 5033.	.....	<sup>a</sup> 206. +	.....	28	.....	.....	.....	.....	Do.
U. S. Nat. Mus. Coll. 15466	.....	<sup>a</sup> 195. +	.....	27	19.5	6.5	25.5	33	

## PROCELSTERNA CERULEA.

Phil. Acad. Sci. Coll. 5029.	.....	180	.....	27	.....	.....	.....	.....	Polynesia.
Phil. Acad. Sci. Coll. 5031.	.....	178	.....	26	.....	.....	.....	.....	Do.
U. S. Nat. Mus. Coll. 131532.	.....	180	.....	25.5	17. +	.....	24	30	Dog Island, Low Archipelago.

<sup>a</sup>Wing tip broken.